

REMARKS

This responds to the Office Action mailed on April 19, 2005.

No claims are amended, no claims are canceled, and no claims are added; as a result, claims 1-34 are now pending in this application. Applicant respectfully requests reconsideration of the above-identified application in view of the remarks that follow.

§102 Rejection of the Claims

Claims 14-18 were rejected under 35 U.S.C. § 102(e) for anticipation by Bojarczuk (U.S. 6,541,079) in view of Osten (US 2003/0193061). Applicant traverses these grounds of rejection of these claims.

Applicant reserves the right to swear behind Bojarczuk and Osten at a later date.

Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *In re Dillon* 919 F.2d 688, 16 USPQ 2d 1897, 1908 (Fed. Cir. 1990) (en banc), cert. denied, 500 U.S. 904 (1991). Therefore, Applicant submits that these rejections under 35 U.S.C. § 102(e) for anticipation by Bojarczuk in view of Osten are not proper. Since these rejections are not proper under 35 U.S.C. § 102(e), Applicant respectfully requests that the finality of the rejections in the Office Action be removed.

Further, Applicant cannot find in Osten a disclosure, a teaching, or a suggestion of a transistor including a praseodymium oxide dielectric layer on a body region, where the praseodymium oxide contacts the body region substantially without an interface material between the praseodymium oxide and the body region, as recited in claim 14. Applicant submits that Osten's discussion of crystalline praseodymium oxide in a transistor is provided in paragraph [0056], where Osten discusses a transistor having a praseodymium oxide layer with an interface including a silicate. Osten's transistor in this discussion has a praseodymium oxide dielectric layer and an interface that is "less than 20%" of the transistor's gate oxide layer, where the interface includes a silicate. Thus, Osten appears to teach away from the features recited in instant claim 14. Thus, Applicant submits that Osten does not anticipate claim 14.

Claims 15 -18 depend on claim 14 and are patentable over Osten for at least the reasons stated above with respect to claim 14.

Additionally, Applicant cannot find in Bojarczuk a disclosure, a teaching, or a suggestion of a transistor including a praseodymium oxide dielectric layer on a body region, where the praseodymium oxide contacts the body region substantially without an interface material between the praseodymium oxide and the body region, as recited in claim 14. Bojarczuk deals with producing layers of metal oxides by a method that uses a reactive atomic or molecular beam concurrent oxidation and deposition. *See, Bojarczuk Summary, column 1, line 66 – column 2, line 3.* In addition, Bojarczuk lists a number of elements that are bombarded onto a substrate while oxygen is being bombardment on the substrate to form an oxide or oxynitride. *See, Bojarczuk Summary, column 1, line 18 – column 1, line 30.* Bojarczuk's list includes Pr. However, Applicant cannot find in Bojarczuk further discussion of Pr. Subsequent to providing this list, Bojarczuk discusses forming aluminum oxide where "[t]he interface between the oxide and the Si was free of any interfacial layers as deduced from high resolution transmission electron microscopy." Applicant submits that forming aluminum oxide such that an interface between the aluminum oxide and the Si is free of any interfacial layers does not disclose, teach, or suggest a praseodymium oxide dielectric layer that contacts a body region substantially without an interface material between the praseodymium oxide and the body region. In the Summary (column 3, lines 1-6) and in closing remarks (column 4, lines 60-65) Bojarczuk recites: "it will be understood that various omissions and substitutions and changes in the form and details of the method and apparatus illustrated, and in their operation, may be made by those skilled in the art without departing from the spirit of the invention." Applicant cannot find in Bojarczuk a discussion regarding which substitutions belong to which changes in details of the method. Therefore, Applicant cannot find in Bojarczuk a disclosure, a teaching, or a suggestion of a Pr oxide layer on Si such that an interface between the Pr oxide and the Si is free of any interfacial layers. Applicant submits that Bojarczuk does not teach the identical invention in as complete detail as is contained the claim. "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP § 2131. Thus, Applicant submits that Bojarczuk does not anticipate claim 14 and that claim 14 is patentable over Bojarczuk.

Claims 15 -18 depend on claim 14 and are patentable over Bojarczuk for at least the reasons stated above with respect to claim 14.

Applicant respectfully requests withdrawal of these rejections of claims 14-18, and reconsideration and allowance of these claims.

First §103 Rejection of the Claims

Claims 1-13 and 19-26 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bojarczuk in view of Osten, Wilk (U.S. 6,258,637), and Borden (U.S. 6,154,280).

Applicant traverses these rejections of the claims.

Applicant cannot find in the combination of Bojarczuk, Osten, Wilk, and Borden a teaching or a suggestion of a praseodymium oxide dielectric layer on a surface portion of a body region, where the praseodymium oxide contacts the surface portion substantially without an interface material between the praseodymium oxide and the surface portion as recited in claim 1. As discussed above, Applicant cannot find in Bojarczuk or in Osten a teaching or a suggestion of a praseodymium oxide dielectric layer on a surface portion of a body region, where the praseodymium oxide contacts the surface portion substantially without an interface material between the praseodymium oxide and the surface portion as recited in claim 1. Also, Applicant submits that Wilk and Borden do not cure the deficiencies in citing Bojarczuk and Osten with respect to claim 1. Thus, Applicant submits that Bojarczuk in view of Osten, Wilk, and Borden does not teach or suggest all the elements of claim 1, and that claim 1 is patentable over Bojarczuk in view of Osten, Wilk, and Borden.

Further, Applicant cannot find in the combination of Bojarczuk, Osten, Wilk, and Borden a teaching or a disclosure of a praseodymium oxide dielectric layer on a surface portion of a body region, where the praseodymium oxide contacts the surface portion substantially without an interface material between the praseodymium oxide and the surface portion, where the body region has a surface roughness of approximately 0.6 nm as recited in claim 1. In the Office Action, it is stated:

Therefore, it would have been obvious to one with ordinary skill in the art at the time of the invention to modify Bojarczuk and provide a surface portion of the body region that has a surface roughness to approximately 0.6 nm for the benefit of providing high device reliability and performance as taught by Wilk in column 1, lines 50-52 and also for the benefit of the transistor being capable of withstanding higher electric fields as taught by Borden in column 4, lines 29-40.

Applicant respectfully disagrees. In the section of Bojarczuk including column 14, lines 15-17, cited in the Office Action, Bojarczuk discusses a surface roughness associated with a SiO_x interface layer. Further, Applicant cannot find a teaching or a suggestion in the combination of Bojarczuk, Osten, Wilk, and Borden that provides a reasonable expectation that the combination of these references would led to a praseodymium oxide dielectric layer on a surface where the praseodymium oxide contacts the surface substantially without an interface material and where the surface has a roughness of approximately 0.6 nm. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991); MPEP § 2143.

Applicant submits that, for at least the reasons stated above, claim 1 is patentable over Bojarczuk in view of Osten, Wilk, and Borden. Applicant further submits that independent claims 7, 11, 19, and 23 are patentable over Bojarczuk in view of Osten, Wilk, and Borden for at least the reasons discussed above with respect to claim 1. Claims 2-6, claims 8-10, claims 20-22, and claims 24-26 depend on claims 1, 7, 11, 19, and 23, respectively, and are patentable over Osten in view of Wilk and Borden for at least the reasons discussed herein.

Applicant requests withdrawal of these rejections of claims 1-13 and 19-26, and reconsideration and allowance of these claims.

Second §103 Rejection of the Claims

Claims 27-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Bojarczuk in view of Osten, Wilk, Borden, and the Admitted Prior Art. Applicant traverses these rejections of the claims.

Applicant submits that independent claims 27 and 31 are patentable Bojarczuk in view of Osten, Wilk, Borden, and the alleged Admitted Prior Art for at least the reasons discussed above with respect to claim 1. Claims 28-30 and claims 32-34 are dependent on claims 27 and 31, respectively, and are patentable for at least the reasons stated above with respect to claims 27 and 31.

Applicant respectfully requests withdrawal of these rejections of claims 27-34, and reconsideration and allowance of these claims.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (612) 371-2157 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

Respectfully submitted,

KIE Y. AHN ET AL.

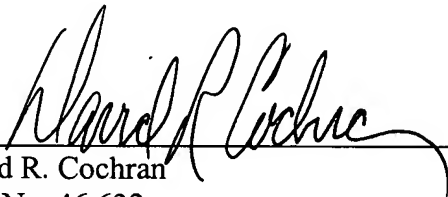
By their Representatives,

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Date

20 June 2005

By


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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail, in an envelope addressed to: Mail Stop AF, Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 20 day of June, 2005.

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